IN THE CLAIMS:

The following is a complete listing of the claims, and replaces all earlier version and listings.

1. (currently amended): A color conversion method of inputting at least two color difference values and obtaining a corresponding saturation value, comprising steps of:

creating a main lookup table which stores saturation value for the color difference values, and a sub-lookup table for obtaining ~~an address~~ a value corresponding to a first color difference value, which is equal to or less than a second color difference value of the two color difference values, for accessing the main lookup table;

determining [[the]] an address of the main lookup table in correspondence with the two color difference values on the basis of the value obtained from the sub-lookup table by the first color difference value and a difference between the two color difference values; and

obtaining a saturation value corresponding to the two color difference values from the address determined in said determining step.

2. (original): The method according to claim 1, wherein the main lookup table has a smaller number of entries than the number of all possible combinations of the two color difference values by utilizing symmetry of the saturation value for the color difference values.

3. (currently amended): The method according to claim 1, wherein the sub-lookup table stores an address of [[an]] the entry in which the two color difference values are the same.

4. (currently amended): A lookup table for obtaining an output value defined for an input value, comprising:

a main lookup table adapted to, when a definition of an output value has or is regarded to have symmetry for a plurality of input values, or when a combination of the plurality of input values is limited by a specific existence condition, store the output values for the plurality of input values in consideration of at least one of the symmetry and the specific existence condition; and

a sub-lookup table adapted to store an address of an entry in which a first input value and a second input value of the plurality of input values are the same,

wherein [[an]] the address of said main lookup table is determined on the basis of an address obtained from said sub-lookup table by an input value being equal or less than other input value of two arbitrary input values and a difference between the two input values, in correspondence with the two arbitrary input values.

5. (original): The table according to claim 4, wherein the specific existence condition includes a color space.

6. (original): The table according to claim 4, wherein the output value includes a saturation in a color space determined in advance.

7. (currently amended): An image processing apparatus for inputting image data and obtaining a corresponding saturation value, comprising:

calculation means for calculating a color difference value of each pixel of the input image data;

a main lookup table adapted to store saturation values for the color difference values;

a sub-lookup table adapted to obtain ~~an address~~ a value corresponding to a first color difference value being equal or less than other color difference value of the two color difference values, for accessing said main lookup table in correspondence with the color difference value;

determination means for determining [[the]] an address of said main lookup table in correspondence with two color difference values of pixels calculated by said calculation means, on the basis of the value obtained from said sub-lookup table by the first color difference value and a difference between the two color difference values; and

read means for accessing said main lookup table on the basis of the address determined by said determination means and reading out a ~~corresponding~~ saturation value corresponding to the two color difference value.

8. (original): The apparatus according to claim 7, wherein said main lookup table has a smaller number of entries than the number of all possible combinations of the two color difference values by utilizing symmetry of the saturation value for the color difference values.

9. (currently amended): The apparatus according to claim 7, wherein said sub-lookup table stores [[an]] the address of an entry in which the two color difference values are the same.